Name_____ Date _____

7.8 Practice A

In Exercises 1–4, factor the polynomial by grouping.

1. $x^3 - 3x^2 + x - 3$

2. $x^3 - 2x^2 + 9x - 18$

3. $2y^3 - 2y^2 + 3y - 3$

4. $3p^3 + 5p^2 - 12p - 20$

In Exercises 5–10, factor the polynomial completely.

5. $4y^3 - 36y$

6. $3r^2 - 8r + 7$

7. $3t^3 + 12t^2 + 12t$

8. $-6q^3 + 28q^2 + 10q$

9. $5y^5 - 5y^4 - 10y^3$

10. $7x^2 + 21x + 7$

In Exercises 11–14, solve the equation.

11. $3j^3 + 21j^2 + 30j = 0$

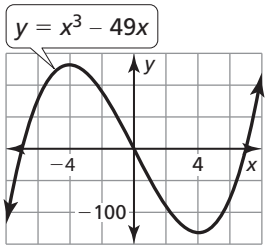
12. $w^4 - 36w^2 = 0$

13. $y^3 - 2y^2 - 9y + 18 = 0$

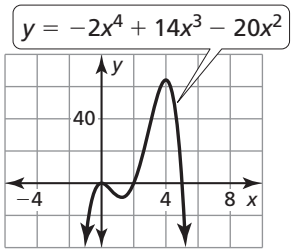
14. $5t^5 + 5t^4 - 210t^3 = 0$

In Exercises 15 and 16, find the *x*-coordinates of the points where the graph crosses the *x*-axis.

15.



16.



17. A rectangular box has a volume of 105 cubic centimeters. The width of the rectangular box is x centimeters, the length is $(2x - 3)$ centimeters, and the height is 3 centimeters.

a. Write a polynomial that represents the volume of the rectangular box.

b. What are the dimensions of the rectangular box?

In Exercises 18 and 19, factor the polynomial completely.

18. $a^3 - 4a + 3a^2b - 12b$

19. $9g^3 - g - 18g^2h + 2h$